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The Connect South Carolina Broadband Initiative

A Proposal Prepared for
The office of U.S. Representative James Clyburn

by
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PART 1: INTRODUCTION

Connected Nation, Inc.

Connected Nation is a national 501(c)(3) non-profit corporation based in Washington, DC. Connected Nation believes that states, communities, families and individuals can realize great economic and social advantages when broadband availability is accelerated in underserved areas and broadband use is increased in all areas, rural and urban, alike.

Connected Nation facilitates public-private partnerships to increase access to and use of broadband and related technology, creating dramatic results that translate into economic and community development, better education, higher quality healthcare, more efficient public service and improved quality of life. Connected Nation aspires to be recognized as an international market leader among organizations that work in the trenches to bridge the digital divide and increase opportunities that are enabled when people have the ability and desire to connect.

Through its pilot initiative, ConnectKentucky, Connected Nation developed a nationally-recognized model for spurring broadband deployment and increasing broadband adoption. Connected Nation launched sister initiatives in Ohio and Tennessee and is in the process of doing the same in Illinois and West Virginia. Additionally, Connected Nation has produced statewide broadband availability maps for the state of Minnesota and is currently producing maps for Colorado, Kansas and North Carolina. Connected Nation's successful model consists of five primary components:

1. Broadband infrastructure mapping
2. Performing comprehensive research on broadband use and barriers to broadband adoption
3. Launching a statewide grassroots technology planning and awareness campaign that consists of local "e-Community Leadership Teams" in each county
4. Facilitating a collaborative relationship between the state and the broadband provider community, including estimating the true cost of service build-out into unserved areas
5. Increasing the use and ownership of computers and related devices that incite demand for broadband

Because Connected Nation facilitates true public-private partnerships, several leading telecommunications providers and related organizations have identified themselves as Connected Nation's national partners, including Comcast, Verizon, the Minority Media Telecommunications Council, AT&T, the U.S. Telecom Association, the Communication Workers of America (CWA), the Intel Corporation, the National Association of State Chief Information Officers (NASCIO), CTIA – The Wireless Association, American Farm Bureau Federation and the American Academy of Nursing.

Connect South Carolina represents a partnership between Connected Nation and the Alliance for Digital Equality (ADE) that unites the two organizations behind a common set of objectives to empower South Carolinians and their communities with the technologies and skills to thrive in the networked world. ADE is a bipartisan consumer advocacy organization that is a leading voice of underserved communities on matters that pertain to information technology, telecommunications reform and product awareness with a mission to facilitate and ensure "equal access" to technology that seeks to empower all communities. Both Connected Nation and The Alliance for Digital Equality strive to be the advocates of underserved communities to raise awareness concerning broadband equality and support policies that increase awareness to new technologies and products – regardless of the demographics.

PART 2: CONNECT SOUTH CAROLINA: A COMPREHENSIVE BROADBAND INITIATVE

PART 2.1: CREATING AN ENVIRONMENT TO CLOSE BROADBAND GAPS

As mentioned above, full broadband deployment in South Carolina is expected to create or retain more than 34,000 jobs and create an additional $1.62 billion in direct economic impact for the state. Connect South Carolina will develop and implement a strategy that increases the availability and adoption of broadband. The Connect South Carolina model will also allow for the creation of an environment in South Carolina that will enable the state to take full advantage of the funds available through the American Recovery and Reinvestment Act (ARRA) for broadband infrastructure build-out.

Through the Connect South Carolina initiative, South Carolina will be in a better position to leverage the maximum federal investment for broadband deployment and private capital needed to create jobs and stimulate economic growth in rural and urban areas.

2.1.1 *The Creation of a Broadband Availability Map*

As the state of South Carolina works to ensure that all residents have equal access to broadband technology, there remains a basic – and significant – need to develop the tools to effectively promote investment for ubiquitous broadband access. First and foremost is a reliable measurement of broadband availability and a reliable identification and assessment of the gaps in broadband service. The methods employed by Connect South Carolina's principal, Connected Nation, to identify where broadband gaps exist have recently been cited in *The Economist* and *Business Week* as the nation's model for identifying service gaps in a way that can then encourage expanded coverage.

Connect South Carolina proposes the revision and updating of the street-level broadband inventory map previously produced by Connected Nation *(Mapping 2.0)*. This revised statewide map will contain actual updated provider coverage which identifies broadband availability within the state and focuses on those unserved areas of the state that will be.the primary targets of this proposal. **The revised Connect South Carolina map will continue to provide accurate information on the percentage of county residents who currently have access, what percentage of its geographic area has access and what types of broadband are available (including but not limited to digital subscriber line ("DSL"), cable modem service, fiber ("FTTx"), fixed wireless, mobile wireless and, if applicable, broadband over power lines). Additionally, the map will depict what speeds are available via those platforms.**

The Connect South Carolina map was developed using standards-based methodology for delivering objective and reliable reporting of the highest industry quality. This process is not simply data collection; it is designed to spawn integrated, comprehensive and collaborative engagement between broadband providers and the communities that they serve. South Carolina can be assured that critical quality control was applied throughout the duration of the initial mapping effort and that the same care will be nurtured through the development of the Mapping 2.0 process. Through mechanisms such as online map feedback and map hotlines, consumers have direct input on the accuracy of the maps. (These online and telephone systems are also used to aggregate demand for broadband services in unserved areas across the state.)

The Connect South Carolina geographic information system (GIS) mapping campaign will continue to **exceed** the national requirement for broadband mapping. While other state and federal agencies use "high-level" mapping methods (e.g. census tract and/or census block group), the Connect South Carolina mapping will be performed **below** the census block level. This provides greater attention and allows Connect South Carolina to focus on exact locations of broadband availability regardless of service delivery platform. Additionally, terrain analyses have been conducted to match geographic conditions with appropriate technology options for unserved areas (e.g. fixed wireless). These maps are critical in building the business case for deployment in rural areas.

Connected Nation has extensive knowledge and experience in developing these GIS products and datasets and is *engaged in comprehensive mapping projects in Kentucky, Minnesota, Kansas, North Carolina, Illinois, Tennessee, Ohio, West Virginia and Colorado.* These models have become the national gold standard for broadband mapping and are widely respected by members of the national network provider and telecommunications industry.

Vertical assets (e.g. towers) owned by both public and private entities will be displayed on the maps. Private asset information will be collected using several methods; however, much of the data will be collected while Connect South Carolina works with wireless Internet service providers ("WISPs") and other providers who utilize these assets. It is Connect South Carolina's standard process to work with these providers to understand where their assets are and how they are or utilizing them, or transmitting from them, in order to reverse engineer their network and provide the most accurate electronic depiction of broadband coverage. Connect South Carolina utilizes predictive propagation modeling and/or line-of-site software[1] to ensure that wireless propagation plots have been processed against terrain data sets such as Shuttle Radar Topography Mission, Digital Terrain Elevation Data, GTOPO30 (a global digital elevation model with a horizontal grid spacing of 30 arc seconds - approximately 1 kilometer), USGS topography maps, etc.

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[1] EDX Signal v9.3

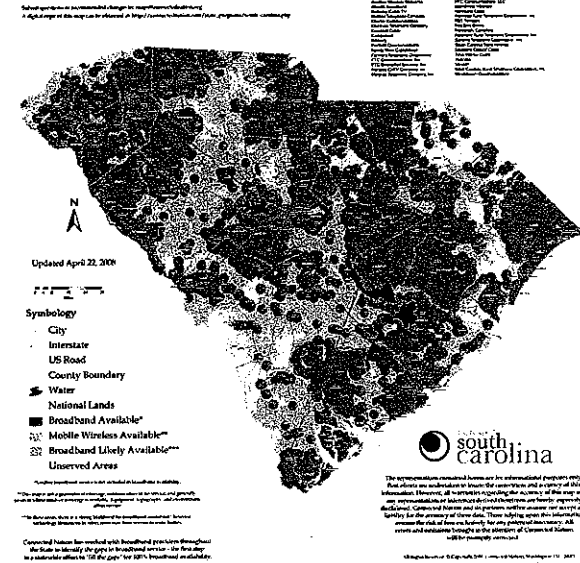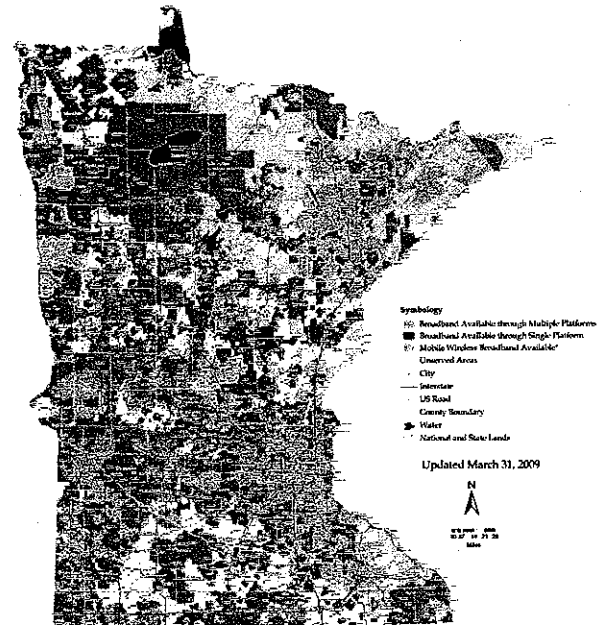**Figure 2.1.1.1: South Carolina's Broadband Map (v 1.0)**   **Figure 2.1.1.2: Minnesota's Broadband Map**

2.1.2 *Facilitate Public-Private Partnerships*

This level of solid and meaningful broadband availability data can only be obtained through cooperative, on-the-ground dialogue with all broadband providers. This continuous dialogue and data-sharing effort requires a flexible mapping system. Many broadband providers — especially small providers — do not have data stored in any standard format. Often, Connected Nation works in the field, and literally on the ground, with providers to understand their networks in order to produce accurate availability maps. The benefit to the state is a quick and efficient commencement of the mapping effort. ***Connect South Carolina, through its Principals, is the only company or organization in the world that has mapped broadband availability on such a comprehensive scale.***

Throughout the mapping process, Connect South Carolina will develop rich relationships with local, statewide and national broadband service providers. These symbiotic and productive relationships provide Connect South Carolina with a strong foundation and leverage for developing and fostering relationships within the state of South Carolina to encourage investment in broadband services.

The legal construct under the Non-Disclosure Agreements (NDAs) strengthens the working relationship and encourages service providers to be more willing to collaborate and help determine in detail both the broadband gaps and the particular challenges in deploying broadband in a particular area. As a result, while broadband provider confidentiality is preserved, the output of Connect South Carolina maps is highly detailed and granular — far more so than the output that the state or a traditional consultant could provide on their own. This granular, rich data provides critical information for the development of network expansion business plans, including detailed descriptions of household density and relevant demographic and economic information about unserved areas.

All of this information is made available to the general public in an interactive mode accessible via the Internet. Community-level reports at the request of cities, towns or municipalities can also be generated to a highly-specific level.

2.1.3 *Employ Market-Based Strategies for Investment*
As the development of Mapping 2.0 occurs, Connect South Carolina will conduct extensive survey research to better understand the barriers to broadband technologies and applications within a given community. This research also helps identify pent-up demand for prospective services in communities that private broadband service providers may

not yet recognize. All of this information is essential in developing broadband capacity build-out plans within the communities served by Connect South Carolina broadband maps and custom mapping analyses.

This state level research is then drilled down to the local level in order to inform the tactical strategy in each county or community. Through the combined experience of its Principals, **Connect South Carolina has learned from experience that a "one size fits all" approach is not effective for creating local broadband plans if communities are to effectively and sustainably fill the broadband gaps and improve technology literacy and use.** For example, the plan for a mountainous, mining community in eastern Kentucky will be substantially different than the challenges faced in the farming communities of northern Ohio, and there will be a wholly-separate set of challenges in the urban neighborhoods of Memphis, Tennessee.

Connect South Carolina will develop custom county-level technology assessments in every county throughout the state, and these assessments will be combined and analyzed with customized broadband maps to provide a solid research basis for a strategic demand stimulation process in each county and community. For example, a research topic that will be considered in South Carolina is that of American minorities. Recent studies show that American minorities continue to be among the nation's digitally disconnected. In surveys conducted across three states, computer ownership and broadband adoption among minority residents lag behind non-minorities.

- Only 69% of minorities own computers, compared to 76% of non-minorities.
- Among low-income minorities, computer ownership falls significantly lower at 46%. Only 47% of minorities subscribe to broadband at home, compared to 52% of non-minority residents.
- Home broadband adoption among low-income minorities falls to a staggering 20%. The technology gap for minorities is evident in both urban and rural areas. It is only in suburban areas that minorities maintain computer ownership and broadband adoption rates that are equal to or better than average.
- In urban areas, where broadband is nearly ubiquitous, broadband adoption among minorities remains low at only 47%.
- By contrast, 60% of non-minorities subscribe to broadband in urban areas. In rural areas, broadband adoption among minorities still falls well below non-minorities.
- Only 33% of minorities subscribe to broadband compared to 40% of non-minorities. The racial breakdown illustrates lower broadband adoption rates among all minorities, with Hispanics and African Americans posting significantly lower computer ownership rates.

This research works hand-and-glove with the Connect South Carolina revised broadband mapping process (Mapping 2.0). The purpose of the process is not simply to collect and disseminate data; the process is designed to spawn integrated, comprehensive and collaborative engagement between broadband providers and the communities that they serve. The combination of an effective broadband map and timely market information on local challenges to technology adoption allows broadband providers and communities to accurately mesh technology deployment with potential users of application development, all while increasing community awareness and adoption.

PART 2.2: CREATING DEMAND & STIMULATING INVESTMENT IN BROADBAND

2.2.1 *eCommunity Leadership Teams*
The foundation for stimulating broadband providers to deploy in underserved areas is rooted squarely in the "eCommunity" planning process. While the supply and demand sides are distinct in terms of process, they are inextricably linked in terms of outcome. One is dependent upon the other for success. Broadband providers will not deploy if there is not sufficient demand for services; consumers cannot use the technology unless it is available. Connected Nation works simultaneously with both supply and demand side realities in a manner that respects communities and gets results on both ends.

The barriers to adoption of broadband technologies and applications vary widely and depend on income, education, geography and cultural factors. Household levels of computer ownership and literacy, awareness of broadband applications and their impact on broadband adoption rates are important barriers to adoption. Small businesses face technology challenges that are very different from medium and larger businesses:

Connect South Carolina embraces the similarities shared with the door-to-door "awareness builders" of the Rural Electrification Administration in the 1930s and 1940s. Connect South Carolina will work at the community level to illustrate the importance and relevance of technology as an enabler for improving local quality of life, providing better education and healthcare and spurring economic development. Rural consumers allocate their energies and their spending towards those things that are perceived to be highly valuable and pragmatic.

Connect South Carolina is not lost on the point that the most significant interest group to engage are those residents that make up the very fabric of South Carolina's communities. Only through contextualization of this critical stakeholder's needs can the promise of a Connect South Carolina program be realized — the enhancement of economic development, healthcare, education, tourism, public health and safety, government efficiency, conservation and state parks and the overall quality of life for South Carolinians.

Ultimately, Connect South Carolina taps into the same spirit that successfully addressed challenges related to the electrification of rural America. For Connect South Carolina, this means working through existing county structures to engage with community leaders across a relevant cross section of that community's life to encourage technology availability and adoption by assisting community leaders in the identification and utilization of relevant strategies.

Connect South Carolina eCommunity Leadership Teams will be tasked with the development of a Strategic Technology Plan for each of the 46 counties in the state of South Carolina, essentially creating a roadmap that will accelerate the local impact of technology. These teams will be formed by the chief elected officials of each of the counties. The work of these teams will receive strong direct support from regional project field managers hired by Connect South Carolina specifically to provide effective guidance. Field managers will be highly-qualified South Carolinians geographically placed to ensure appropriate statewide coverage.

The focus of each eCommunity Leadership Team is to develop a comprehensive, actionable technology growth plan for that community — one that encompasses the current and future needs of all relevant sectors in the community — from healthcare, education and agriculture to business & industry, local government and tourism. Connected Nation employs a team of technology-planning specialists (eCommunity Strategists) in each state to work with these teams to develop the strategic plans. This same model is being used in states such as Kentucky, Tennessee, Ohio and California (See Figure 2.2.1.1 below).

Figure 2.2.1.1: *The eCommunity Strategy Process (as implemented in the Connect Ohio program)*
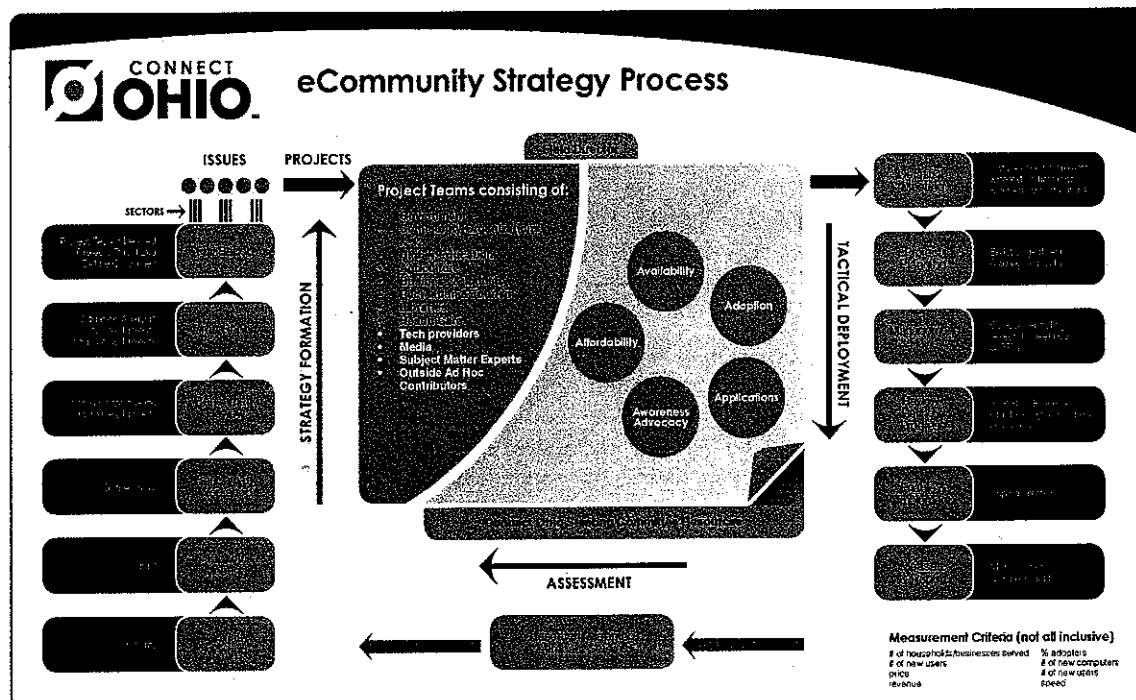
The eCommunity process is highly collaborative and localized and offers an insightful method of assessing county-level readiness for broadband adoption. Specifically, each eCommunity planning process includes, but is certainly not limited to, the following work activities:

- Technology training and coordination of existing training/literacy resources
- Implementing community technology awareness campaigns and broadband demand creation activities
- Building and enhancing county and city websites
- Conducting interoperability assessments of city, county, state and federal communications assets
- Managing information security for local government as well as interested organizations and small business

2.2.2 *Identify Opportunities for Investment*

Connect South Carolina brings to the table a level of expertise in this area that is without equal in the state of South Carolina. The partners in Connect South Carolina have enjoyed highly-collaborative relationships with high-speed Internet providers and technology companies with assets in South Carolina. Collectively, these relationships provide the necessary platforms upon which to build solid mapping data delivery, demand aggregation models and constructive creation of market intelligence. Connect South Carolina will be uniquely positioned like no other state entity in its ability to report on strategy, policy and market analysis of the broadband industry and specifically as it relates to rural broadband efforts.

Connected Nation, while formally engaged in nine states, also tracks and analyzes broadband activity in all fifty states and in several countries. This attention keeps the company's "finger on the pulse" of a very dynamic industry — providing South Carolina with the advantage and leverage of its rich experience and knowledge of best practices to benefit the state program.

For instance, as the acknowledged leader in broadband measurement and benchmarking, Connected Nation maintains the world's largest data mart (supply and demand sides) for the broadband industry, and, because Connected Nation routinely conducts market analysis and survey work in underserved and under-utilizing areas of the U.S., South Carolina's own findings are validated against the largest storehouse of demand-side broadband data available. The net result is context to South Carolina; customized research endeavors with high prognostic value. Additionally, Connected Nation maintains an unmatched storehouse of qualitative data which informs analysts and provides a validated roadmap for the implementation of recommendations.

2.2.3 *Grant Opportunities*

Connect South Carolina will maximize the opportunities available to South Carolina through the ARRA and apply and implement federal grants consistent with the objectives of the initiative. Connected Nation possesses a proven track record of several successful applications for federal grants. Examples of some of the federal grants utilized are Appalachian Regional Commission (ARC) and Delta Regional Authority (DRA) grants. Connected Nation also successfully led the efforts on several RUS Community Connect Grants. The RUS Community Connect Grant is one of the most competitive and difficult-to-win grants. To date, Connected Nation has secured awards on three Community Connect grants.

Because the ARRA contains funding opportunities for broadband infrastructure build-out on a scale that has never before been seen — $3.9 billion at NTIA and $2.5 billion at RUS — it is extremely important that South Carolina positions itself to take advantage of these opportunities by creating an apparatus within the state to facilitate and coordinate grant applications for these funds.

Additionally, the recent passage of the federal Broadband Data Improvement Act (S. 1492, also known as Public Law 110-385) presents Connect South Carolina with one of its largest grant-writing opportunities yet. A partnership with Connected Nation, having served as the archetype for the grant award criteria schedule, will prove favorable to any state program in the months ahead as the competitive grant program rolls out.

Connect South Carolina will also conduct a private sector resource development endeavor called the Partners program to encourage the investment of "skin in the game" by those who can ultimately profit from the Connect South Carolina initiative. Invested Partners will be provided with access to specific types of market intelligence and be recognized on the website, www.connectsc.org, as a supporting Partner.

2.3.1 *Community Involvement*

Connect South Carolina will effectively utilize the eCommunity Strategies program to assess connectivity needs at schools, libraries and hospitals throughout the state. Representatives of each local school district, library and healthcare institution in every community will be asked to serve on each county team. The connectivity needs for each institution will be included in the county's technology strategic plan, and the local team members will work with Connect South Carolina staff members to find solutions to address those needs.

With a significant amount of funding included in the ARRA for broadband infrastructure build-out, a tremendous opportunity exists to address the identified needs with federal funding. Connect South Carolina will, in coordination with the state education, library and health agencies, work with communities to apply for relevant ARRA funds.

2.3.2 *Promoting Computer Ownership and Increased Technology Use Among the Disenfranchised*

Connect South Carolina will be uniquely positioned to implement strategies to increase computer ownership and broadband access among disenfranchised populations, such as Connected Nation's "No Child Left Offline" (NCLO) program. This program utilizes private foundation support and computer refurbishment programs to put computers into the homes of families that can't afford them, and works to equip community technology centers with the latest technology. To date, Connected Nation has distributed over 5,000 computers through this program.

2.3.3 *Connecting Libraries*

Connected Nation is a proud partner of the Bill and Melinda Gates Foundation working to increase broadband connectivity to local libraries and inform/advance state libraries' strategies to sustain high-speed connectivity. The qualifications and deliverables acquired through this partnership will enable Connect South Carolina to implement a similar strategy for South Carolina's libraries through the local eCommunity teams.

PART 3: OUTLINE OF DELIVERABLES AND TIMELINE FOR IMPLEMENTATION

PART 3.1: PROJECT BUDGET

To successfully lead and execute the Connect South Carolina initiative, annual funding of approximately $1,324,700 will be required, for a three-year total cost of $4,086,300. Because this initiative fully qualifies for federal funding support under Section 106 of the Broadband Data Improvement Act (BDIA), the Connect South Carolina initiative would be eligible to receive 80% of the three-year cost, or $3,269,040, if Connect South Carolina is named as the "designated eligible entity" by the state for BDIA funds. The remaining 20% non-federal match can be raised from private sector partners and other sources, meaning that the state's required contribution could potentially be zero. Connected Nation's initiatives in Kentucky, Tennessee and Ohio have always operated on a 20% private sector match funding model.

Maps – GIS mapping, deployment benchmarking and tracking, market intelligence, provider analytics and support	$352,200	Built-in quarterly oversight and reporting; demonstrated progress toward goals
Research – Examining barriers to broadband adoption in South Carolina communities	437,100	Annual consumer/business survey reports; county-level surveys

eCommunity Strategies – Custom demand-creation program in all 46 South Carolina counties	2,089,800	Local assessments, grassroots planning, advocacy, engineering analyses, public relations and project management
Partnership Management – Connect South Carolina Steering Committee facilitation	232,200	Public/private partnership; provider engagement; stakeholder management
No Child Left Offline Program – Computer distribution	975,000	Program management
Average Annual Cost	$1,362,100	
Total Three-Year Cost	$4,086,300	

PART 3.2: PROJECT TIMELINE

Connect South Carolina will launch a three-year intensive and comprehensive statewide technology expansion campaign. Each year of the three-year program will be aimed at impacting broadband expansion and increasing broadband adoption. Below is a general timeline for deliverables during the first year (July 1, 2009-June 30, 2010):

- Establish Connect South Carolina office in Columbia, South Carolina
- Launch Connect South Carolina survey research project
- Complete formation of Connect South Carolina Steering Committee (partnerships)
- Launch a statewide public awareness campaign
- Develop eCommunity Leadership Team process
- Begin the implementation of the eCommunity Leadership Team process
- Identify and pursue public/private grant funding to further enable the Connect South Carolina program
- Extensively revise and update the state map (Mapping 2.0) within three months of program launch (updated quarterly thereafter)
- Begin collaborative planning of projects to increase computer ownership among disenfranchised populations

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PART 3.3: ACCOUNTABILITY AND OVERSIGHT

Connect South Carolina is committed to providing a program and organization that ensures success and attainment of the chartered objectives. Program governance is paramount for the coordination and synergy of the comprehensive plan components. Connect South Carolina will operate as an independent organization under the supervision of a South Carolina-based Executive Director who will be hired by Connect South Carolina. Input from the state regarding the selection of this individual is welcomed and encouraged.

The Connect South Carolina Steering Committee will provide a mechanism of accountability for the state's investment in the Connect South Carolina initiative. The Steering Committee will ensure that all established objectives are being met in a timely and satisfactory manner and will serve in an advisory role on technology policy. The committee will bring Connect South Carolina public and private sector partners (including labor) to a neutral and common table for the purposes of 1) Aggregating support for the goals of Connect South Carolina, 2) Reviewing and identifying strategies for encouraging computer and broadband adoption and 3) Collaborating to solve South Carolina's technology-related challenges.